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Reply to Final Office Action of Oct. 21, 2003

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REMARKS

Applicants respectfully request reconsideration of the above-identified application in view of the foregoing amendments and the following remarks.

In the October 21, 2003 Office Action, the Examiner noted that claims 1-5, 9-11 and 13-15 were pending in the application and that claims 1-5, 9-11 and 13-15 were rejected. By this Amendment, claims 1 and 10 are amended and claims 2 and 3 are cancelled. No new matter has been added by this amendment. Support for the amendatory material of claims 1 and 10 can be found at page 6, lines 27-29 and Figure 1(a) and Figure 2 of Applicants' specification. Claim 1 also incorporates the limitations of claims 2 and 3. Applicants believe that claims 1, 4-5, 9-11 and 13-15 are in condition for allowance. The Examiner's rejections are respectfully traversed below.

Rejection Under 35 U.S.C. §102(b) – Asami et al.

In the Office Action, the Examiner rejected claims 1-4 and 9-10 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,393,924 (Asami et al.). However, the Examiner has not identified where each limitation of the rejected claims is allegedly found in Asami et al.

The present invention is drawn to a reservoir for storing hydrogen, comprising a housing, a molded body comprising a compressed hydrogen storage material powder, a heat medium passage including a duct that has a plurality of holes that extend parallel with each other in a longitudinal direction of the duct, and a filter which forms a hydrogen passage. See claim 1. Additionally, the present invention is drawn to a reservoir for storing hydrogen, comprising a housing a plurality of storage units stacked in the interior of the housing, wherein each storage

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unit includes: a pair of plate-like molded bodies comprising a compressed hydrogen storage material powder, a heat exchanger located between the molded bodies (wherein the heat exchanger includes a flat duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct), and a plurality of filters which form flat hydrogen passages.
See claim 10.

Asami et al. is directed to a heat exchange apparatus for use with hydrogen storing material, which is characterized in that a regenerator chamber packed with a heat storing material is disposed in between a high temperature fluid pathway and a low temperature pathway of the heat exchanger. Col. 2, lines 9-14. The Examiner has directed Applicants' attention to Figures 2a and 3 of Asami et al. However, there is no disclosure in these Figures nor anywhere else in Asami et al. of a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct.

Thus, Asami fails to disclose the instant invention. As claims 1 and 10 (and dependent claims 4 and 9) all recite this plurality of holes limitation, Asami et al. cannot anticipate these claims. Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

Rejection Under 35 U.S.C. §103(a) – Asami et al.

In the Office Action, the Examiner rejected claims 5 and 11 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,393,924 (Asami et al.). According to the Examiner, Asami et al. discloses all the claimed features of the invention, with the exception of the specifically claimed material copper.

However, Asami et al. does not "disclose all the claimed features of the invention, with the exception of the specifically claimed material copper." As discussed above, the present

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invention is drawn to a reservoir for storing hydrogen, comprising a housing, a molded body comprising a compressed hydrogen storage material powder, a heat medium passage including a duct that has a plurality of holes that extend parallel with each other in a longitudinal direction of the duct, and a filter which forms a hydrogen passage. *See* claim 5. Additionally, the present invention is drawn to a reservoir for storing hydrogen, comprising a housing a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes: a pair of plate-like molded bodies comprising a compressed hydrogen storage material powder, a heat exchanger located between the molded bodies (wherein the heat exchanger includes a flat duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct), and a plurality of filters which form flat hydrogen passages. *See* claim 11.

Asami et al. is directed to a heat exchange apparatus for use with hydrogen storing material, which is characterized in that a regenerator chamber packed with a heat storing material is disposed in between a high temperature fluid pathway and a low temperature pathway of the heat exchanger. Col. 2, lines 9-14. However, there is no teaching or suggestion in Asami et al. of a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct.

Thus, Asami fails to render obvious claims 5 and 11. Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

Rejection Under 35 U.S.C. §103(a) – Asami et al. in view of Onishi et al.

In the Office Action, the Examiner rejected claim 13 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,393,924 (Asami et al.) in view of JP 62-288495 (Onishi et al.). According to the Examiner, Asami et al. discloses all the claimed features of the invention with the exception of the body including a chamfer.

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However, Asami et al. does not "disclose all the claimed features of the invention with the exception of the body including a chamfer." As discussed above, the present invention is drawn to a reservoir for storing hydrogen, comprising a housing a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes: a pair of plate-like molded bodies comprising a compressed hydrogen storage material powder, a heat exchanger located between the molded bodies (wherein the heat exchanger includes a flat duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct), and a plurality of filters which form flat hydrogen passages. See claim 13.

Asami et al. is directed to a heat exchange apparatus for use with hydrogen storing material, which is characterized in that a regenerator chamber packed with a heat storing material is disposed in between a high temperature fluid pathway and a low temperature pathway of the heat exchanger. Col. 2, lines 9-14. However, there is no teaching or suggestion in Asami et al. of a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct.

Onishi et al. does not make up for the deficiencies of Asami et al.. Onishi et al. is drawn to a heat exchanger. See Abstract. The Examiner cited Onishi et al. for disclosing bodies including a chamfer for the purpose of having an efficient packing of the bodies within a housing which increases the filling rate of hydrogen. Onishi et al. does not teach or suggest a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct. Thus, its combination with Asami et al. would not render obvious claim 13.

Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

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Rejection Under 35 U.S.C. §103(a) – Asami et al. in view of Davis

In the Office Action, the Examiner rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,393,924 (Asami et al.) in view of U.S. Patent No. 6,237,680 B1 (Davis). According to the Examiner, Asami et al. discloses all the claimed features of the invention with the exception of a connecting section between upstream and downstream sections.

However, Asami et al. does not "disclose all the claimed features of the invention with the exception of a connecting section between upstream and downstream sections." As discussed above, the present invention is drawn to a reservoir for storing hydrogen, comprising a housing a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes: a pair of plate-like molded bodies comprising a compressed hydrogen storage material powder, a heat exchanger located between the molded bodies (wherein the heat exchanger includes a flat duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct), and a plurality of filters which form flar hydrogen passages. See claim 14.

Asami et al. is directed to a heat exchange apparatus for use with hydrogen storing material, which is characterized in that a regenerator chamber packed with a hear storing material is disposed in between a high temperature fluid pathway and a low temperature pathway of the heat exchanger. Col. 2, lines 9-14. However, there is no teaching or suggestion in Asami et al. of a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct.

Davis does not make up for the deficiencies of Asami et al.. Davis is drawn to a radiator which utilizes laminar flow to more efficiently cool a liquid coursing through the

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radiator. Col. 1, lines 6-8. The Examiner cited Davis for disclosing that it is known to have a connecting section between upstream and downstream sections for the purpose of increasing the fluid flow length which increases the time the fluid exchanges heat which increases the overall heat exchange efficiency. Davis does not teach or suggest a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct. Thus, its combination with Asami et al. would not render obvious claim 14.

Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

Rejection Under 35 U.S.C. §103(a) – Asami et al. in view of Davis, and further in view of Farfaletti-Casali et al.

In the Office Action, the Examiner rejected claim 15 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,393,924 (Asami et al.) in view of U.S. Patent No. 6,237,680 B1 (Davis) and further in view of U.S. Patent No. 4,362,207 (Farfaletti-Casali et al.). According to the Examiner, Asami et al., as modified, discloses all the claimed features of the invention with the exception of the header including both upstream and downstream sections.

However, Asami et al., as modified does not "disclose all the claimed features of the invention with the exception of the header including both upstream and downstream sections." As discussed above, the present invention is drawn to a reservoir for storing hydrogen, comprising a housing a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes: a pair of plate-like molded bodies comprising a compressed hydrogen storage material powder, a heat exchanger located between the molded bodies (wherein the heat exchanger includes a flat duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct), and a plurality of filters which form flat hydrogen passages. See claim 15.

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Asami et al. is directed to a heat exchange apparatus for use with hydrogen storing material, which is characterized in that a regenerator chamber packed with a heat storing material is disposed in between a high temperature fluid pathway and a low temperature pathway of the heat exchanger. Col. 2, lines 9-14. However, as discussed above, there is no teaching or suggestion in Asami et al., even as modified by Davis, of a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct.

Farfaletti-Casali et al. does not make up for the deficiencies of Asami et al., as modified. Farfaletti-Casali et al. is drawn to an integrated system adapted to use and exploit substances in solid and paste form which are capable of exo-endothermic thermochemical reactions as a means for term storage of thermal energy. Col. 1, lines 6-11. The Examiner cited Farfaletti-Casali et al. for disclosing that it is known to have a header including upstream and downstream sections for the purpose of reducing the number of parts and reducing overall size, weight and cost. Farfaletti-Casali et al. does not teach a duct having a plurality of holes that extend parallel with each other in a longitudinal direction of the duct. Thus, its combination with Asami et al., as modified, would not render obvious claim 15.

Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

CONCLUSION

For all the reasons advanced above, Applicants respectfully submit that the application is in condition for allowance and that action is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees which may be required for this amendment, or credit any overpayment to Deposit Account No. 13-4500, Order No. 5000-4853.

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In the event that an extension of time is required, or may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 5000-4853.

Respectfully submitted,
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